

MINERALS & MINERALS LIMITED

Regd. Office- Court Road, P.O. & Distt.-Lohardaga, Jharkhand-835302

Tel.-06526-223163

CIN NO. U26990JH1970PLC000875

Ref. :

Date

Ref No: M&M/LHD/GM (GEO) MoEF/ 79

Date: 27.05.2019

To,
The Additional Principal Chief Conservator of Forest (C)
Ministry of Environment, Forests and Climate Changes
Regional Office (ECZ), Ranchi-834002.

Sub: Compliance Report of EC conditions for Bimarla (134.526 ha) Bauxite Mining project of M/s Minerals & Minerals Limited located in Gumla, Jharkhand for the period October'18 to March'19.

Ref: Environmental Clearance letter no J-11015/87/2009-IA.II (M) dated 24th Sep, 2013

Sir,

With reference to the above, we are submitting herewith the Compliance status report of EC conditions for **Bimarla (134.526 ha)** Bauxite Mining project of **M/s Minerals & Minerals Limited** located in Gumla, Jharkhand for the period October'18 to March'19.

Hope you will find the same in order.

Thanking You

Yours Sincerely

FOR **Minerals & Minerals Limited**



(Basudev Gangopadhyay)
GM (Geology & Environment)

Enclosure: - As Above

Copy to: Member Secretary, JSPCB, Ranchi

RO, JSPCB, Ranchi

CPCB, Zonal Office, Kolkata

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Bimarla Bauxite Mines (Area 134.526 Ha)
Environmental Clearance –Vide letter no-J-11015/87/2009-IA.II (M) dated 24th Sep, 2013
Compliance Status, Period: October'18-March'19

SN	Specific Condition	Compliance
1	The project proponent shall obtain Consent to Establish and Consent to Operate from the Jharkhand State Pollution Control Board and effectively implement all the conditions stipulated therein.	Consent to Establish and consent to operate obtained. Implementations of Stipulated conditions are being complied. The existing consent to operate is valid till 30 Sep 2019. Online CTO application submitted for renewal approval to SPCB, Ranchi as per guideline.
2	Implementations of conditions laid down in the letter of the State Department of Forests vide dated 11.05.2012 with regard to permission for transportation of ore through the forest land.	Implementations of conditions as laid down in the letter are being complied with.
3	Necessary wildlife clearance as may be applicable to this project should be obtained. Measures for conservation of flora and fauna observed in the study area shall be undertaken. Wildlife Conservation Plan shall be implemented in consultation with the State Forests and Wildlife Department.	We understand Wildlife Clearance is not applicable to this project. Safeguard Measures already implemented: 1. Minimum level of Noise during Mining. 2. Fuel woods are being provided to labourers. 3. Permanent pillars are established within in the mine lease area at 7.5m from the forest boundary 4. Daily water sprinkling on haul road. 5. Transportation is carried out during day time only. 6. Social activities are being undertaken in nearby areas etc.
4	Adequate measures for control of air pollution in the area shall be taken and it shall be ensured that the pollution levels do not exceed the prescribed limits.	Measures for control of air pollution in the area are being taken. Monitoring report attached Annexure 1.
5	No working shall be undertaken in the forest area for which forestry clearance has not been obtained.	Lease area is devoid of any forest land.
6	Necessary prior clearance, as applicable shall be obtained from	Mining is confined to above ground water table level only and it is not

	CGWA for working below groundwater table.	intersecting ground water table. We undertake that no mining is/was carried out below ground water table and the same statusco will be maintain in future also.
7	The Company shall submit within 3 months their policy towards Corporate Environment Responsibility which should inter-alia provide for (i) Standard operating process / process to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions, (ii) Hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the EC conditions and (iii) System of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders.	(i) Standard operating process / process to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions, (ii) Hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the EC conditions and (iii) System of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company have been submitted to MoEF&CC.
8	The mining operations shall be restricted to above the groundwater table and it should not intersect the groundwater table, In case of working below the groundwater table, prior approval of the Ministry of Environment and Forests and the Central Ground Water Authority shall be obtained, for which a detailed hydrogeological study shall be carried out.	Mining is confined to above ground water table level only. Mining will not intersect the ground water table. Proper care is being taken in this regard.
9	The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations. The first order streams and the seasonal nallahs originating from the mining lease area shall be protected	No natural watercourse and/or water resource is being and will be obstructed due to any mining operations. No first order streams and the seasonal nallahs are originating from the mining lease.
10	The top soil, if any shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long; The topsoil shall be used for land reclamation and plantation.	Top soil is being stacked separately for reclamation and rehabilitation of mined out areas with progress of mining.

11	Monitoring and management of rehabilitated areas should continue until vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional Office, Bhubaneswar on six monthly basis.	This Mine started production since 2015-16. Concurrent Backfilling has already been started and it is as per the approved mining plan. The status of backfilling is attached as Annexure-4.
12	Catch drains and siltation ponds of appropriate size shall be constructed around the working pit, sub-grade dump, soil and mineral dumps to arrest flow of silt and sediment directly into the agricultural fields and the water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted, particularly after monsoon, and maintained properly, Garland drains settling tanks and check dams of appropriate size, gradient and length shall be constructed for both around the mine pit and sub-grade dump to prevent run off of water and flow sediments directly into the agricultural fields and the water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.	Sump, Catch drains and siltation ponds of are constructed. Place for construction of rainwater harvesting pond identified. The above activity will continue with the progress of mining. No active external dump exist as on date.
13	Dimension of the retaining wall at the toe of sub-grade dump and OB benches within the mine to check run-off and siltation should be based on the rain fall data.	There is no external OB dump as of now.
14	The plantation is proposed over an area of 24 ha with 2500 samplings per ha.	Total 2000 saplings have been planted in safety zone. Green belt development programme is in progress with progress of mining activities.

15	Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	Regular water sprinkling is being carried out on haul road and critical areas. Ambient Air Quality parameters conform to the norms. Report attached as Annexure 1
16	The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.	Suitable measures such as catch drains, Sump, and siltation ponds of are constructed. Place for Rainwater harvesting pond is identified.
17	Regular monitoring of ground water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and installing new piezometers during the mining operation. The periodic monitoring [(at least four times in a year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office Bhubaneswar, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.	The EC mentions that ground water table is at depth of approx 60 mts The working is restricted at shallow depth max in the range of 15-18 mts. Thus there is no possibility of intersection of ground water table. Monitoring report of water quality (potable) is attached as Annexure 1
18	Monitoring of the springs shall be carried out for the quality and quantity of water regularly so as to ensure that there is no adverse	There is no spring within Mine lease area, However Monitoring of springs in nearby areas carried out. Report attached Annexure 1

	impact- on the same due to the project. Records in this regards shall be maintained.	
19	It shall be ensured that there is no change in the hydrology of the area due to the project.	Agreed, no change is noted as of now.
20	Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.	Sump, Catch drains and siltation ponds of are constructed. Place for construction of rainwater harvesting pond identified. The above activity will continue with the progress of mining.
21	Appropriate mitigative measures shall be taken to prevent pollution of the all the water bodies, in consultation with the State Pollution Control Board	Suitable measures such as siltation pond, contour bunds are being taken to prevent water pollution. Drains are provided. All precautions are being taken to ensure that water does not flow outside mine lease areas. There is no contamination of water due to mining activities.
22	Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral from mine face to the beneficiation plant. The vehicles shall be covered with a tarpaulin and shall not be overloaded.	Regular maintenance of vehicles are undertaken to minimize vehicular emission. Measures are being taken to control emission. The vehicles are being covered with tarpaulin while transportation of mineral.
23	Blasting operation shall be carried out only during the daytime. Controlled blasting shall be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.	Blasting time is fixed during Lunch Time i.e. 1.00 PM -2.00 PM. Controlled blasting method is in practice. All efforts are being taken to mitigate impact of blasting.
24	Drills shall either be operated with dust extractors or equipped with water injection system.	Wet drilling is in practice.
25	Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.	Two nos. of water tanker have been provided for sprinkling of water on haul roads and active mining areas to arrest fugitive dust. Water spraying at loading, unloading, etc is also being done regularly.
26	Sewage treatment plant shall be installed for the colony. ETP shall	As of now there is no colony within the lease hold. Suitable measures

	also be provided for the workshop and wastewater generated during the mining operation.	will be taken if required in future. There is no effluent generated from this mine.
27	The project authorities should undertake sample survey to generate data on pre project community health status within a radius of 1 km from proposed mine.	As a part of Community Health status check we regularly conducts medical camp in nearby areas since inception of Mine.
28	Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.	Pre-placement medical examination conducted. Periodical medical examination are being carried out in due time.
29	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Safe drinking water and medical facilities already provided. Other applicable infrastructure will be constructed phase wise. Workers employed are localities only who resides in nearby areas.
30	The critical parameters such as RSPM (Particulate matter with size less than 10µm i.e. PM ₁₀) and NO _x in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [(TDS, DO, PH and Total Suspended Solids (TSS)). The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The Circular No. 3-20012/1/2006-IA.11 (M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.	Monitoring data is uploaded in website and displayed at mines (report enclosed)Annexure 1
31	A Final Mine Closure Plan along with details of Corpus Fund should be	Will be complied in due time. Progressive mine closure plan

	submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	approved along Scheme of Mining. Based on the present resource estimate, and peak rated production capacity mentioned in EC, tentative balance life is around 13 yrs. However, after completion of further detailed exploration, resources estimate vis-à-vis balance life of mine may change based on final resource estimate, EC capacity and cut-off grade at that point of time.
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SN	General Conditions	Compliance
1	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.	Agreed.
2	No change in the calendar plan including excavation, quantum of mineral bauxite and waste should be made.	Bauxite production is within the quantity mentioned in EC. Quantum of OB, Bauxite etc annexed as Annexure-4.
3	Conservation measures for protection of flora and fauna in the core and bufferzone should be drawn up in consultation with the local forest and wildlife department.	Safeguard Measures Conservation measures for protection of flora and fauna being implemented and as follows: <ol style="list-style-type: none"> 1. Minimum level of Noise during Mining. 2. Fuel woods are being provided to labourers. 3. Permanent pillars are established within in the mine lease area at 7.5m from the forest boundary 4. Daily water sprinkling on haul road. 5. Transportation is carried out during day time only. 6. Social activities is being undertaken in nearby areas etc.
4	At least four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM	Monitoring is being carried out and reported to concern authorities. Report attached asAnnexure-1.

	(Particulate matter with size less than 10 micron i.e., PM10) and NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	
5	Data on ambient air quality [(RSPM (Particulate matter with size less than 10micron i.e., PM10) and NOx] should be regularly submitted to the Ministry including its Regional office located at: Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.	Monitoring is being carried out and reported to concern authorities. Report attached asAnnexure-1.
6	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Suitable water spraying arrangement is being done to control fugitive dust emissions from loading, unloading and transfer points as applicable.
7	Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.	Measures are being taken for control of noise level. PPE's provided to workers.
8	Industrial waste water (workshop and waste water from the Mine) should beproperly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31' December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.	There is no industrial waste water.
9	Personnel working in dusty areas should wear protective respiratory	Personal protective equipment's

	<p>devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.</p>	<p>have been provided to workers.</p> <p>Safety training is being provided to persons working in mine.</p> <p>Occupational health surveillance program of the workers is being carried out.</p>
10	<p>A separate environmental management cell with suitable qualified personnel directly to the Head of the Organization.</p>	<p>Separate environment management cell with suitable qualified persons is already formulated as Annexure-3.</p>
11	<p>The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubaneswar.</p>	<p>The fund earmarked for environmental protection measures is being budgeted separately.</p> <p>Annual expenditure is being reported to the Ministry. Annexure-2.</p>
12	<p>The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.</p>	<p>Date of start of land development is 21.05.2015 (Opening notice sent to concerned offices) The provision related to financial closure is not applicable as it is an operational mine.</p>
13	<p>The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.</p>	<p>Agreed. Currently, the Regional Office is located at Ranchi.</p>

14	<p>The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office Bhubaneswar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar, the respective Zonal Officer of Central Pollution Control Board and the State Pollution Control Board</p>	<p>Six monthly compliance is being submitted timely to the Ministry of Environment and Forests, its Regional Office Ranchi, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board and also uploaded in Hindalco's website.</p>
15	<p>The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the Collector's office/ Tehsildar's Office for 30 days.</p>	<p>Displayed.</p>
16	<p>The environmental statement for each financial year ending 31 March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Office of the Ministry of Environment and</p>	<p>Is being complied.</p>

	Forests, Bhubaneswar by e-mail.	
17	The project authorities should advertise at least in two local newspapers of the which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubaneswar	Complied. Relevant paper cutting duly submitted.



Eco Ventures Pvt. Ltd.

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Corporate Office: 7/8 Bhaveshwar Bhuvan, Opp Portugese Church, Near Dindayal Upadhyay Garden, Gokhale Road (North), Dadar (West), Mumbai 400 028. Tel: +91 22 24370520 / 6672.

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Mahabal Enviro Engineers Pvt. Ltd.

At Booty, Near PHED Colony, Behind Pump House, PO – RMCC,
District – Ranchi 834009

KORLE-BIMARLA PLATEAU- ENVIRONMENTAL MONITORING REPORT

OCTOBER TO DECEMBER 2018

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

OCTOBER – DECEMBER 2018

CONTENT

	LOCATION
A.	AMBIENT AIR QUALITY
1	Nav Prathmik Vidyalaya Barang Path
2	Bimarla Quarry No 1 B
3	Near Weigh Bridge
4	Korle (Kahukona)
B.	DRINKING WATER
	Near Quarry
	Near Canteen





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Hindalco Industries:

Environmental Monitoring Report

OCTOBER – DECEMBER 2018

Report no: MEEPL/JAN0171/2018-19	Date: 30 th January, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Nav Prathmik Vidyalaya Barang Path	
Sample collected on: 18.12.2018	

LOCATION / IDENTIFICATION: Nav Prathmik Vidyalaya Barang Path				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	60.3
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	33.0
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.6
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.9
05.	Ammonia (NH ₃)	µg/m ³	400	4.1
06.	Ozone (O ₃)	µg/m ³	180	10.4
07.	Carbon Monoxide (CO)	mg/m ³	02	0.24
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.8
10.	Arsenic (As)	ng/m ³	06	2.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries:

Environmental Monitoring Report

OCTOBER – DECEMBER 2018

Report no: MEEPL/JAN0172/2018-19	Date: 30 th January, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Bimarla Quarry No 1 B	
Sample collected on: 18.12.2018	

LOCATION / IDENTIFICATION: Bimarla Quarry No 1 B				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	73.9
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	37.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.3
05.	Ammonia (NH ₃)	µg/m ³	400	4.7
06.	Ozone (O ₃)	µg/m ³	180	11.4
07.	Carbon Monoxide (CO)	mg/m ³	02	0.29
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.9
10.	Arsenic (As)	ng/m ³	06	2.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.40

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

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Hindalco Industries:

Environmental Monitoring Report

OCTOBER – DECEMBER 2018

Report no: MEEPL/JAN0173/2018-19	Date: 30 th January, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Weigh Bridge	
Sample collected on: 18.12.2018	

LOCATION / IDENTIFICATION: Near Weigh Bridge				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	79.4
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	41.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	5.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	7.1
05.	Ammonia (NH ₃)	µg/m ³	400	9.9
06.	Ozone (O ₃)	µg/m ³	180	12.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.35
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	2.5
10.	Arsenic (As)	ng/m ³	06	2.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.41

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





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Hindalco Industries:

Environmental Monitoring Report

OCTOBER – DECEMBER 2018

Report no: MEEPL/JAN0174/2018-19	Date: 30 th January, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Korle (KahuKona)	
Sample collected on: 18.12.2018	

LOCATION / IDENTIFICATION: Korle (KahuKona)				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	65.7
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	30.3
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.6
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.1
05.	Ammonia (NH ₃)	µg/m ³	400	5.0
06.	Ozone (O ₃)	µg/m ³	180	10.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.31
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	2.7
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.35

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:

At Booty, Near PHED Colony, Behind Pump House, PO – RMCC, District – Ranchi 834009,
Mobile No: +91 9431.102.102 / +91 9955.358.262,
E-mail: mahabalanranchi@gmail.com

Hindalco Industries:

Environmental Monitoring Report

OCTOBER – DECEMBER 2018

Report no: MEEPL/JAN0175/2018-19	Date: 30th January, 2019
Sample described by customer : DRINKING WATER-POTABILITY	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: DRINKING WATER-POTABILITY	
Marks on Sample: Location: Near Quarry	
Sample collected on: 18.12.2018	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 nd Ed. 2012, 2120-B, 2-6
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.3	1 Max	APHA 22 nd Ed. 2012, 2130-B, 2-13
5	pH	--	7.0	6.5-8.5	APHA 22 nd Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	0.2 min	APHA 22 nd Ed. 2012, 4500-CI-G, 4-69
7	Total Dissolved Solids	mg/l	471	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Monochloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
9	Dichloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
10	Total hardness (as CaCO ₃)	mg/l	50	200 max	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO ₃)	mg/l	63	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	19.1	250 max	APHA 22 nd Ed. 2012, 4500-CI-b, 4-72
13	Sulphate (as SO ₄)	mg/l	13.2	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190





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Hindalco Industries:

Environmental Monitoring Report

OCTOBER – DECEMBER 2018

Continuation Sheet

MEEPL/JAN0175/2018-19

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
14	Nitrate (as NO ₃)	mg/l	0.88	45 max	APHA 22 nd Ed. 2012, 4500-NO ₃ -E, 4-125
15	Fluoride (as F)	mg/l	0.02	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.01	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	14.9	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	2.1	30 max	APHA 22 nd Ed. 2012, 3500-Mg-B, 3-84
19	Ammonical Nitrogen/Total Ammonia	mg/l	<0.1	--	APHA 22 nd Ed. 2012, 4500-NH ₃ -F, 4-115
20	Iron (as Fe)	mg/l	0.05	0.3 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
21	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
22	Aluminium (as Al)	mg/l	0.01	0.03 max	APHA 22 nd Ed. 2012, 3500-Al-B, 3-61
23	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
24	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
25	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
26	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
27	Zinc (as Zn)	mg/l	0.02	5 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 3112-B, 3-23
30	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
31	Nickel (as Ni)	mg/l	<0.01	0.02 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
32	Mineral Oil	mg/l	N.D	0.5 max	IS 3025 (Part 39): 1991, Reaffirmed 2003: ed. 2.1
33	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-CN.C & 4-39 & 4-44
34	Anionic detergents as MBAS	mg/l	<0.1	0.2 max	APHA 22 nd ED. 2012, 5540-C.C & 5-53
35	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	N.D	0.001 max	APHA 22 nd ED. 2012, 5530-B & C 5-4753
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 nd ED. 2012, 6440, 6-93
37	Polychlorinated Biphenyls (PCBs)	mg/l	N.D	0.0005 max	USEPA Method 8082
38	Sulphide (as S)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-S2-C 4- 175 & F 4-178





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Hindalco Industries:

Environmental Monitoring Report

OCTOBER – DECEMBER 2018

Continuation Sheet

MEEPL/JAN0175/2018-19

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
Microbiological Analysis					
1	Total Colliforms	MPN/100mL	N.D	<1.1	APHA 22 nd Ed. 2012, 9221-B & C, 9-66, 9-69 and 9-67
2	E-Coli	MPN/100mL	N.D	Absent	APHA 22 nd Ed. 2012, 9221-B & C, 9-66, 9-69 and 9-76
Pesticides Residues					
3	p.p DDT	µg/L	N.D	1	US EPA 508-1995
4	o.p DDT	µg/L	N.D	1	US EPA 508-1995
5	p.p DDE	µg/L	N.D	1	US EPA 508-1995
6	o.p DDE	µg/L	N.D	1	US EPA 508-1995
7	p.p DDD	µg/L	N.D	1	US EPA 508-1995
8	o.p DDD	µg/L	N.D	1	US EPA 508-1995
9	γ-HCH (Lindance)	µg/L	<0.01	2	US EPA 508-1995
10	α -HCH	µg/L	<0.01	0.01	US EPA 508-1995
11	β-HCH	µg/L	N.D	0.04	US EPA 508-1995
12	Б- HCH	µg/L	N.D	0.04	US EPA 508-1995
13	Butachlor	µg/L	N.D	125	US EPA 508-1995
14	Alachlor	µg/L	N.D	20	US EPA 508-1995
15	Atrazine	µg/L	N.D	2	US EPA 508-1995
16	α Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
17	β Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
18	Endosulfan Sulphate	µg/L	N.D	0.4	US EPA 508-1995
19	Ethion	µg/L	N.D	3	US EPA 8141A-1994
20	Malathion	µg/L	N.D	190	US EPA 8141A-1994
21	Methoyl Parathion	µg/L	N.D	0.3	US EPA 8141A-1994
22	Monocrotophos	µg/L	N.D	1	US EPA 8141A-1994
23	Phorate	µg/L	N.D	2	US EPA 8141A-1994
24	Chlorpyrifos	µg/L	N.D	30	US EPA 8141A-1994
25	Aldrin	µg/L	N.D	0.03	US EPA 508-1995
26	Dieldrin	µg/L	N.D	0.03	US EPA 508-1995
Remarks: N.D- Not Detected					

Conclusion: The Physical & Chemical Analysis report indicates that the water is not contaminated and potable

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

OCTOBER – DECEMBER 2018

Report no: MEEPL/JAN0176/2018-19	Date: 30th January, 2019
Sample described by customer : DRINKING WATER-POTABILITY	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: DRINKING WATER-POTABILITY	
Marks on Sample: Location: Near Canteen	
Sample collected on: 18.12.2018	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 nd Ed. 2012, 2120-B, 2-6
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.3	1 Max	APHA 22 nd Ed. 2012, 2130-B, 2-13
5	pH	--	7.1	6.5-8.5	APHA 22 nd Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	0.2 min	APHA 22 nd Ed. 2012, 4500-CI-G, 4-69
7	Total Dissolved Solids	mg/l	448	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Monochloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
9	Dichloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
10	Total hardness (as CaCO ₃)	mg/l	49	200 max	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO ₃)	mg/l	60	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	18.2	250 max	APHA 22 nd Ed. 2012, 4500-CI-b, 4-72
13	Sulphate (as SO ₄)	mg/l	11.7	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190





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Hindalco Industries:

Environmental Monitoring Report

OCTOBER – DECEMBER 2018

Continuation Sheet MEEPL/JAN0176/2018-19

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
14	Nitrate (as NO ₃)	mg/l	0.91	45 max	APHA 22 nd Ed. 2012, 4500-NO ₃ -E, 4-125
15	Fluoride (as F)	mg/l	0.03	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.02	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	14.8	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	2.0	30 max	APHA 22 nd Ed. 2012, 3500-Mg-B, 3-84
19	Ammonical Nitrogen/Total Ammonia	mg/l	<0.1	--	APHA 22 nd Ed. 2012, 4500-NH ₃ -F, 4-115
20	Iron (as Fe)	mg/l	0.05	0.3 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
21	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
22	Aluminium (as Al)	mg/l	0.01	0.03 max	APHA 22 nd Ed. 2012, 3500-Al-B, 3-61
23	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
24	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
25	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
26	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
27	Zinc (as Zn)	mg/l	0.02	5 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 3112-B, 3-23
30	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
31	Nickel (as Ni)	mg/l	<0.01	0.02 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
32	Mineral Oil	mg/l	N.D	0.5 max	IS 3025 (Part 39): 1991, Reaffirmed 2003: ed. 2.1
33	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-CN.C & 4-39 & 4-44
34	Anionic detergents as MBAS	mg/l	<0.1	0.2 max	APHA 22 nd ED. 2012, 5540-C.C & 5-53
35	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	N.D	0.001 max	APHA 22 nd ED. 2012, 5530-B & C 5-4753
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 nd ED. 2012, 6440, 6-93
37	Polychlorinated Biphenyls (PCBs)	mg/l	N.D	0.0005 max	USEPA Method 8082
38	Sulphide (as S)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-S2-C 4- 175 & F 4-178





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Hindalco Industries:

Environmental Monitoring Report

OCTOBER – DECEMBER 2018

Continuation Sheet

MEEPL/JAN0176/2018-19

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
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1	Total Colliforms	MPN/100mL	N.D	<1.1	APHA 22 nd Ed. 2012, 9221-B & C, 9-66, 9-69 and 9-67
2	E-Coli	MPN/100mL	N.D	Absent	APHA 22 nd Ed. 2012, 9221-B & C, 9-66, 9-69 and 9-76
Pesticides Residues					
3	p.p DDT	µg/L	N.D	1	US EPA 508-1995
4	o.p DDT	µg/L	N.D	1	US EPA 508-1995
5	p.p DDE	µg/L	N.D	1	US EPA 508-1995
6	o.p DDE	µg/L	N.D	1	US EPA 508-1995
7	p.p DDD	µg/L	N.D	1	US EPA 508-1995
8	o.p DDD	µg/L	N.D	1	US EPA 508-1995
9	γ-HCH (Lindance)	µg/L	<0.01	2	US EPA 508-1995
10	α -HCH	µg/L	<0.01	0.01	US EPA 508-1995
11	β-HCH	µg/L	N.D	0.04	US EPA 508-1995
12	Б- HCH	µg/L	N.D	0.04	US EPA 508-1995
13	Butachlor	µg/L	N.D	125	US EPA 508-1995
14	Alachlor	µg/L	N.D	20	US EPA 508-1995
15	Atrazine	µg/L	N.D	2	US EPA 508-1995
16	α Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
17	β Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
18	Endosulfan Sulphate	µg/L	N.D	0.4	US EPA 508-1995
19	Ethion	µg/L	N.D	3	US EPA 8141A-1994
20	Malathion	µg/L	N.D	190	US EPA 8141A-1994
21	Methoyl Parathion	µg/L	N.D	0.3	US EPA 8141A-1994
22	Monocrotophos	µg/L	N.D	1	US EPA 8141A-1994
23	Phorate	µg/L	N.D	2	US EPA 8141A-1994
24	Chlorpyrifos	µg/L	N.D	30	US EPA 8141A-1994
25	Aldrin	µg/L	N.D	0.03	US EPA 508-1995
26	Dieldrin	µg/L	N.D	0.03	US EPA 508-1995
Remarks: N.D- Not Detected					

Conclusion: The Physical & Chemical Analysis report indicates that the water is not contaminated and potable

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Eco Ventures Pvt. Ltd.

Regd. Office: 2/37, Sarvapriya Vihar, Near IIT Gate, New Delhi-110016

Corporate Office: 7/8 Bhaveshwar Bhuvan, Opp Portugese Church, Near Dindayal Upadhyay Garden,
Gokhale Road (North), Dadar (West), Mumbai 400 028. Tel: +91 22 24370520 / 6672.

E: ecoventures.mumbai@gmail.com / ecoventures@eco-ventures.in

Mahabal Enviro Engineers Pvt. Ltd.

At Booty, Near PHED Colony, Behind Pump House, PO – RMCC,
District – Ranchi 834009

KORLE-BIMARLA PLATEAU- ENVIRONMENTAL MONITORING REPORT

JANUARY TO MARCH 2019

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

JANUARY – MARCH 2019

CONTENT

	LOCATION
A.	AMBIENT AIR QUALITY
1	Nav Prathmik Vidyalaya Barang Path
2	Bimarla Quarry No 1 B
3	Near Weigh Bridge
4	Korle (Kahukona)
B.	NOISE LEVEL
1	Near Weigh Bridge
C.	SPOT NOISE
1	Near Weigh Bridge
D.	DRINKING WATER
	Near Quarry
	Near Canteen





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Hindalco Industries:

Environmental Monitoring Report

JANUARY – MARCH 2019

Report no: MEEPL/MAY0198/2019-20	Date: 21st May, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Nav Prathmik Vidyalaya Barang Path	
Sample collected on: 11.03.2019	

LOCATION / IDENTIFICATION: Nav Prathmik Vidyalaya Barang Path				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	60.3
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	33.0
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.6
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.9
05.	Ammonia (NH ₃)	µg/m ³	400	4.1
06.	Ozone (O ₃)	µg/m ³	180	10.4
07.	Carbon Monoxide (CO)	mg/m ³	02	0.24
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	1.8
10.	Arsenic (As)	ng/m ³	06	2.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.30

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





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Hindalco Industries:

Environmental Monitoring Report

JANUARY – MARCH 2019

Report no: MEEPL/MAY0199/2019-20	Date: 21st May, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Bimarla Quarry No 1 B	
Sample collected on: 11.03.2019	

LOCATION / IDENTIFICATION: Bimarla Quarry No 1 B

Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	73.9
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	37.2
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	4.9
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	5.3
05.	Ammonia (NH ₃)	µg/m ³	400	4.7
06.	Ozone (O ₃)	µg/m ³	180	11.4
07.	Carbon Monoxide (CO)	mg/m ³	02	0.29
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	1.9
10.	Arsenic (As)	ng/m ³	06	2.3
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.40

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





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Hindalco Industries:

Environmental Monitoring Report

JANUARY – MARCH 2019

Report no: MEEPL/MAY0200/2019-20	Date: 21st May, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Near Weigh Bridge	
Sample collected on: 11.03.2019	

LOCATION / IDENTIFICATION: Near Weigh Bridge				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	79.4
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	41.7
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	5.5
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	7.1
05.	Ammonia (NH ₃)	µg/m ³	400	9.9
06.	Ozone (O ₃)	µg/m ³	180	12.5
07.	Carbon Monoxide (CO)	mg/m ³	02	0.35
08.	Lead (Pb)	µg/m ³	1.0	0.03
09.	Nickel (Ni)	ng/m ³	20	2.5
10.	Arsenic (As)	ng/m ³	06	2.2
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.41

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey

SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

Branch Office:

At Booty, Near PHED Colony, Behind Pump House, PO – RMCC, District – Ranchi 834009,
Mobile No: +91 9431.102.102 / +91 9955.358.262,
E-mail: mahabalranchi@gmail.com

Hindalco Industries:

Environmental Monitoring Report

JANUARY – MARCH 2019

Report no: MEEPL/MAY0201/2019-20	Date: 21st May, 2019
Sample described by customer: AMBIENT AIR QUALITY MONITORING	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: AMBIENT AIR QUALITY MONITORING	
Marks on Sample: Location: Korle (KahuKona)	
Sample collected on: 11.03.2019	

LOCATION / IDENTIFICATION: Korle (KahuKona)				
Sl. No.	PARAMETERS	UNIT	Standard Limit	Concentration
01.	Particulate Matter (size less than 10 µm) PM ₁₀	µg/m ³	100	65.7
02.	Particulate Matter (size less than 2.5 µm) PM _{2.5}	µg/m ³	60	30.3
03.	Sulphur Dioxide (SO ₂)	µg/m ³	80	3.6
04.	Nitrogen Dioxide (NO ₂)	µg/m ³	80	4.1
05.	Ammonia (NH ₃)	µg/m ³	400	5.0
06.	Ozone (O ₃)	µg/m ³	180	10.8
07.	Carbon Monoxide (CO)	mg/m ³	02	0.31
08.	Lead (Pb)	µg/m ³	1.0	0.02
09.	Nickel (Ni)	ng/m ³	20	2.7
10.	Arsenic (As)	ng/m ³	06	2.1
11.	Benzene (C ₆ H ₆)	µg/m ³	05	2.0
12.	Benzo (a) Pyrene	µg/m ³	01	0.35

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

JANUARY – MARCH 2019

Report no: MEEPL/MAY0202/2019-20	Date: 21 st May, 2019
Sample described by customer: Measurement of Noise	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: Measurement of Noise	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: 11.03.2019	

Location/Identification	Unit	Limit (day)	Result	Limit (night)	Result
Near Weigh Bridge	dB (A) Leq	75	64.2	70	53.5

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

JANUARY – MARCH 2019

Report no: MEEPL/MAY0203/2019-20	Date: 21 st May, 2019
Sample described by customer: Measurement of Noise	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Description: Measurement of Spot Noise	
Sampling Method: Instrumental, using Sound level Metter	
Data Collection Date: 11.03.2019	

Location/Identification	Unit	Limit (day)	Result
Near Dummer	dB (A) L _{eq}	75	69.7

For Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

JANUARY – MARCH 2019

Report no: MEEPL/MAY0204/2019-20	Date: 21st May, 2019
Sample described by customer : DRINKING WATER-POTABILITY	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: DRINKING WATER-POTABILITY	
Marks on Sample: Location: Near Quarry	
Sample collected on: 11.03.2019	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 nd Ed. 2012, 2120-B, 2-6
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.2	1 Max	APHA 22 nd Ed. 2012, 2130-B, 2-13
5	pH	--	7.4	6.5-8.5	APHA 22 nd Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	0.2 min	APHA 22 nd Ed. 2012, 4500-CI-G, 4-69
7	Total Dissolved Solids	mg/l	460	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Monochloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
9	Dichloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
10	Total hardness (as CaCO ₃)	mg/l	43	200 max	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO ₃)	mg/l	67	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	17.8	250 max	APHA 22 nd Ed. 2012, 4500-CI-b, 4-72
13	Sulphate (as SO ₄)	mg/l	15.5	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190





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Hindalco Industries:

Environmental Monitoring Report

JANUARY – MARCH 2019

Continuation Sheet

MEEPL/ MAY0204/2019-20

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
14	Nitrate (as NO ₃)	mg/l	0.82	45 max	APHA 22 nd Ed. 2012, 4500-NO ₃ -E, 4-125
15	Fluoride (as F)	mg/l	0.03	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.01	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	16.4	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	2.6	30 max	APHA 22 nd Ed. 2012, 3500-Mg-B, 3-84
19	Ammonical Nitrogen/Total Ammonia	mg/l	<0.1	--	APHA 22 nd Ed. 2012, 4500-NH ₃ -F, 4-115
20	Iron (as Fe)	mg/l	0.06	0.3 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
21	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
22	Aluminium (as Al)	mg/l	0.01	0.03 max	APHA 22 nd Ed. 2012, 3500-Al-B, 3-61
23	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
24	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
25	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
26	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
27	Zinc (as Zn)	mg/l	0.02	5 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 3112-B, 3-23
30	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
31	Nickel (as Ni)	mg/l	<0.01	0.02 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
32	Mineral Oil	mg/l	N.D	0.5 max	IS 3025 (Part 39): 1991, Reaffirmed 2003: ed. 2.1
33	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-CN.C & 4-39 & 4-44
34	Anionic detergents as MBAS	mg/l	<0.1	0.2 max	APHA 22 nd ED. 2012, 5540-C.C & 5-53
35	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	N.D	0.001 max	APHA 22 nd ED. 2012, 5530-B & C 5-4753
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 nd ED. 2012, 6440, 6-93
37	Polychlorinated Biphenyls (PCBs)	mg/l	N.D	0.0005 max	USEPA Method 8082
38	Sulphide (as S)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-S2-C 4- 175 & F 4-178





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Hindalco Industries:

Environmental Monitoring Report

JANUARY – MARCH 2019

Continuation Sheet

MEEPL/ MAY0204/2019-20

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
Microbiological Analysis					
1	Total Colliforms	MPN/100mL	N.D	<1.1	APHA 22 nd Ed. 2012, 9221-B & C, 9-66, 9-69 and 9-67
2	E-Coli	MPN/100mL	N.D	Absent	APHA 22 nd Ed. 2012, 9221-B & C, 9-66, 9-69 and 9-76
Pesticides Residues					
3	p.p DDT	µg/L	N.D	1	US EPA 508-1995
4	o.p DDT	µg/L	N.D	1	US EPA 508-1995
5	p.p DDE	µg/L	N.D	1	US EPA 508-1995
6	o.p DDE	µg/L	N.D	1	US EPA 508-1995
7	p.p DDD	µg/L	N.D	1	US EPA 508-1995
8	o.p DDD	µg/L	N.D	1	US EPA 508-1995
9	γ-HCH (Lindance)	µg/L	<0.01	2	US EPA 508-1995
10	α -HCH	µg/L	<0.01	0.01	US EPA 508-1995
11	β-HCH	µg/L	N.D	0.04	US EPA 508-1995
12	Б- HCH	µg/L	N.D	0.04	US EPA 508-1995
13	Butachlor	µg/L	N.D	125	US EPA 508-1995
14	Alachlor	µg/L	N.D	20	US EPA 508-1995
15	Atrazine	µg/L	N.D	2	US EPA 508-1995
16	α Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
17	β Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
18	Endosulfan Sulphate	µg/L	N.D	0.4	US EPA 508-1995
19	Ethion	µg/L	N.D	3	US EPA 8141A-1994
20	Malathion	µg/L	N.D	190	US EPA 8141A-1994
21	Methoyl Parathion	µg/L	N.D	0.3	US EPA 8141A-1994
22	Monocrotophos	µg/L	N.D	1	US EPA 8141A-1994
23	Phorate	µg/L	N.D	2	US EPA 8141A-1994
24	Chlorpyrifos	µg/L	N.D	30	US EPA 8141A-1994
25	Aldrin	µg/L	N.D	0.03	US EPA 508-1995
26	Dieldrin	µg/L	N.D	0.03	US EPA 508-1995
Remarks: N.D- Not Detected					

Conclusion: The Physical & Chemical Analysis report indicates that the water is not contaminated and potable

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE





Mahabal Enviro Engineers Pvt. Ltd.

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Hindalco Industries:

Environmental Monitoring Report

JANUARY – MARCH 2019

Report no: MEEPL/MAY0205/2019-20	Date: 21st May, 2019
Sample described by customer : DRINKING WATER-POTABILITY	
Client Name: Hindalco Industries Limited	
Client Address: Lohardaga	
Postal Code: 835203	
State: Jharkhand	
Country: India	
Sample Type: DRINKING WATER-POTABILITY	
Marks on Sample: Location: Near Canteen	
Sample collected on: 11.03.2019	

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method reference
1	Colour	Hazen	<1	5 Max	APHA 22 nd Ed. 2012, 2120-B, 2-6
2	Odour	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
3	Taste	--	Agreeable	Agreeable	IS 3025 (Part 7): 1983, Reaffirmed 2006
4	Turbidity	NTU	0.4	1 Max	APHA 22 nd Ed. 2012, 2130-B, 2-13
5	pH	--	7.6	6.5-8.5	APHA 22 nd Ed. 2012, 4500-H+-B, 4-92
6	Free Chlorides (Residual)	mg/l	<0.5	0.2 min	APHA 22 nd Ed. 2012, 4500-CI-G, 4-69
7	Total Dissolved Solids	mg/l	433	500 max	IS 3025 (Part 16): 1984, Reaffirmed 2006
8	Monochloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
9	Dichloramines	mg/l	<0.05	--	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
10	Total hardness (as CaCO ₃)	mg/l	52	200 max	APHA 22 nd Ed. 2012, 4500-CIG, 4-69
11	Alkalinity Total (as CaCO ₃)	mg/l	64	200 max	IS 3025 (Part 237): 1986, Reaffirmed 2009
12	Chloride (as Cl)	mg/l	17.5	250 max	APHA 22 nd Ed. 2012, 4500-CI-b, 4-72
13	Sulphate (as SO ₄)	mg/l	10.9	200 max	APHA 22 nd Ed. 2012, 4500-so4-e, 4-190





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Hindalco Industries:

Environmental Monitoring Report

JANUARY – MARCH 2019

Continuation Sheet

MEEPL/ MAY0205/2019-20

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
14	Nitrate (as NO ₃)	mg/l	0.82	45 max	APHA 22 nd Ed. 2012, 4500-NO ₃ -E, 4-125
15	Fluoride (as F)	mg/l	0.04	1 max	APHA 22 nd Ed. 2012, 4500-FB & D, 4-84, 4-87
16	Boron (as B)	mg/l	0.02	0.5 max	APHA 22 nd Ed. 2012, 4500-BB, 4-25
17	Calcium (as Ca)	mg/l	13.6	75 max	APHA 22 nd Ed. 2012, 3500-Ca-B, 3-67
18	Magnesium (as Mg)	mg/l	4.4	30 max	APHA 22 nd Ed. 2012, 3500-Mg-B, 3-84
19	Ammonical Nitrogen/Total Ammonia	mg/l	<0.1	--	APHA 22 nd Ed. 2012, 4500-NH ₃ -F, 4-115
20	Iron (as Fe)	mg/l	0.07	0.3 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
21	Manganese (as Mn)	mg/l	N.D	0.1 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
22	Aluminium (as Al)	mg/l	0.01	0.03 max	APHA 22 nd Ed. 2012, 3500-Al-B, 3-61
23	Cadmium (as Cd)	mg/l	N.D	0.003 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
24	Chromium Total (as Cr)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
25	Copper (as Cu)	mg/l	N.D	0.05 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
26	Lead (as Pb)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
27	Zinc (as Zn)	mg/l	0.03	5 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
28	Arsenic (as As)	mg/l	<0.01	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
29	Selenium (as Se)	mg/l	N.D	0.001 max	APHA 22 nd Ed. 2012, 3112-B, 3-23
30	Mercury (as hg)	mg/l	N.D	0.01 max	APHA 22 nd Ed. 2012, 3114-B, 3-38
31	Nickel (as Ni)	mg/l	<0.01	0.02 max	APHA 22 nd Ed. 2012, 3111-B, 3-18
32	Mineral Oil	mg/l	N.D	0.5 max	IS 3025 (Part 39): 1991, Reaffirmed 2003: ed. 2.1
33	Cyanide (as CN)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-CN.C & 4-39 & 4-44
34	Anionic detergents as MBAS	mg/l	<0.1	0.2 max	APHA 22 nd ED. 2012, 5540-C.C & 5-53
35	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	N.D	0.001 max	APHA 22 nd ED. 2012, 5530-B & C 5-4753
36	Polynuclear aromatic hydrocarbons (PAH)	mg/l	N.D	0.0001 max	APHA 22 nd ED. 2012, 6440, 6-93
37	Polychlorinated Biphenyls (PCBs)	mg/l	N.D	0.0005 max	USEPA Method 8082
38	Sulphide (as S)	mg/l	N.D	0.05 max	APHA 22 nd ED. 2012, 4500-S2-C 4- 175 & F 4-178





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Hindalco Industries:

Environmental Monitoring Report

JANUARY – MARCH 2019

Continuation Sheet

MEEPL/ MAY0205/2019-20

Sl. No.	Parameters	Unit	Result	Acceptable Limit (IS 10500:2012)	Method Reference
Microbiological Analysis					
1	Total Colliforms	MPN/100mL	N.D	<1.1	APHA 22 nd Ed. 2012, 9221-B & C, 9-66, 9-69 and 9-67
2	E-Coli	MPN/100mL	N.D	Absent	APHA 22 nd Ed. 2012, 9221-B & C, 9-66, 9-69 and 9-76
Pesticides Residues					
3	p.p DDT	µg/L	N.D	1	US EPA 508-1995
4	o.p DDT	µg/L	N.D	1	US EPA 508-1995
5	p.p DDE	µg/L	N.D	1	US EPA 508-1995
6	o.p DDE	µg/L	N.D	1	US EPA 508-1995
7	p.p DDD	µg/L	N.D	1	US EPA 508-1995
8	o.p DDD	µg/L	N.D	1	US EPA 508-1995
9	γ-HCH (Lindance)	µg/L	<0.01	2	US EPA 508-1995
10	α -HCH	µg/L	<0.01	0.01	US EPA 508-1995
11	β-HCH	µg/L	N.D	0.04	US EPA 508-1995
12	Б- HCH	µg/L	N.D	0.04	US EPA 508-1995
13	Butachlor	µg/L	N.D	125	US EPA 508-1995
14	Alachlor	µg/L	N.D	20	US EPA 508-1995
15	Atrazine	µg/L	N.D	2	US EPA 508-1995
16	α Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
17	β Endosulfan	µg/L	N.D	0.4	US EPA 508-1995
18	Endosulfan Sulphate	µg/L	N.D	0.4	US EPA 508-1995
19	Ethion	µg/L	N.D	3	US EPA 8141A-1994
20	Malathion	µg/L	N.D	190	US EPA 8141A-1994
21	Methoyl Parathion	µg/L	N.D	0.3	US EPA 8141A-1994
22	Monocrotophos	µg/L	N.D	1	US EPA 8141A-1994
23	Phorate	µg/L	N.D	2	US EPA 8141A-1994
24	Chlorpyrifos	µg/L	N.D	30	US EPA 8141A-1994
25	Aldrin	µg/L	N.D	0.03	US EPA 508-1995
26	Dieldrin	µg/L	N.D	0.03	US EPA 508-1995
Remarks: N.D- Not Detected					

Conclusion: The Physical & Chemical Analysis report indicates that the water is not contaminated and potable

For Mahabal Enviro Engineers Pvt. Ltd.

Vijay Pandey
SENIOR EXECUTIVE



Annexure-2

BREAK UP THE COST OF ENVIRONMENTAL MEASURES DURING THE YEAR 2018-19

The composite cost during the year 2018-19 for environmental protection & pollution control by Jharkhand Mines division of M/s Hindalco Industries Ltd & M/s Minerals & Minerals Ltd for implementation of the suggested measures in EC at our all the operating mines in the state of Jharkhand-namely Pakhar (115,13 Ha), Pakhar (15.58 Ha), Pakhar (109.507 Ha), Pakhar (8.09 Ha), Pakhar (35.12Ha), Serengdag (140.06 Ha), Serengdag (155.81 Ha), Jalim & Sanai (12.14 Ha), Gurdari (584.19 Ha), Amtipani (190.95 Ha), Kujam I (80.97 Ha) Kujam II (157.38 Ha), Bagru (75.41 Ha), Hisri New (14.55 Ha), Chiro kukud (152.57 ha), Orsa pat (196.36 Ha), Bhusar (65.31 Ha) and Bimarla Bauxite Mines (134.52 Ha).

S. No	Description	Budget (in Rupees) FY 2018-19	Actual (in Rupees) FY 2018-19 (from April'18 to Sep'18)	Actual (in Rupees) FY 2018-19 (from October'18 to March'19)
1	Pollution Control & Environment monitoring	15,21,000	8,82,300.00	8,43,969.95
2	Reclamation/ Back filing & Rehabilitation**	2,92,00,000	1,49,78,461.39	2,94,16,735.87
3	Green belt, Plantation & Water spraying arrangement	45,00,256	25,38,864.95	47,17,862.62
4	Rural Development	2,60,25,236	1,32,42,312.42	6,26,47,100.13

**Part of OB removed cost.



(Basudev Gangopadhyay)
Convenor (Quality & Environment)

MINERALS & MINERALS LIMITED

Regd. Office- Court Road, P.O. & Distt.-Lohardaga, Jharkhand-835302

Tel.-06526-223163

CIN NO. U26990JH1970PLC000875

Ref. :

Annexure - 3

Date

Date: 10.01.19

Office Order

Environmental Cell has been re-constituted at Bimarla Bauxite Mines (Area 134.526 Ha) comprising below mentioned team members. The team will ensure compliance of Environment Act, Regulation & Rule in respect of the said mines of Minerals & Minerals Industries Limited.

1. Mr. Jitender Kumar - Mines Manager (Coordinator)
2. Mr. Mihir Barai - Geologist - Member
3. Mr. Chandra Kant Dubey - Asst. Manager- Member
4. Mr. Pramod Kumar Sahu - Jr. Engn. (Mines Foreman)- Member



Basudev Gangopadhyay
Convenor (Quality & Environment)

Annexure 4

Production, Mined Out, Back Filled and Over Burden removal from April'18 to March'19

S No	Name of the Mines	Mining lease area (ha)	Production Capacity (MT)*	Lease Period*	Production (MT)	Mined out area (ha)	Back filled area (ha)	Over burden (Cu.M)
1	Bagru bauxite Mine	75.41	85000	22.01.1974 to 31.03.2030	Mining operation is stopped due to legal problem			
2	Bhusar Bauxite Mine	65.31	280000	11.07.1981 to 31.03.2030	190078	1.638	5.19	335972
3	Hisri (New) Bauxite Mine	14.55	100000	19.07.1981 to 31.03.2030	90674	1.366	0.457	46704
4	Kujam - I Bauxite Mine	80.87	150000	13.03.2006 to 12.03.2056	131115	4.36	4.76	156020.91
5	Kujam - II Bauxite Mine	157.38	300000	24.03.2006 to 23.03.2056	260995	14.29	23.08	499904.89
6	Amtipani Bauxite Mine	190.95	150000	13.03.2006 to 12.03.2056	144670	8.38	3.91	276790.63
7	Gurdari Bauxite Mine	584.19	325000	23.03.1985 to 22.03.2035	322340	13.57	13.68	649920.067
8	Shrengdag A Bauxite Mine	155.81	260000	16.10.1974 to 31.03.2030	255430	3.65	3.20	655460
9	Shrengdag B Bauxite Mine	140.07	100000	04.10.1978 to 31.03.2030	73190	1.04	0.45	159667.5
10	Jalim& Sanai Bauxite Mine	12.14	50000	16.10.1974 to 31.03.2030	40395	1.04	0.45	42125

Annexure 4

11	Orsapat Bauxite Mine	196.36	200000	17.07.1986 to 16.07.2036	1470	0.00	0.00	2185.422	
12	Chiro Kukud bauxite Mine	152.57	100000	29.01.1985 to 28.01.2035	1970	0.113	0.00	13168.924	
13	Pakhar (8.09)	8.09	80000	16.05.1973 to 31.03.2030	Nil	Nil	Nil	Nil	
14	Pakhar (35.12)	35.12	200000	17.04.1975 to 31.03.2030	Nil	Nil	Nil	Nil	
15	Pakhar (115.13)	115.13	300000	19.07.1996 to 31.03.2030	294000	3.31	2.43	521370	
Minerals & Minerals Limited									
16	Pakhar (15.58)	15.58	60000	28.04.1965 to 31.03.2030	35500	0.65	0.92	93116	
17	Pakhar (109.507)	109.507	280000	26.07.2008 to 25.07.2058	247130	2.37	2.82	378979	
18	Birmarla Bauxite Mine	134.526	300000	18.07.2009 to 17.07.2059	185715	8.09	8.65	409391.00	

*Static information about the mines included in the above table



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